

FIG. 1

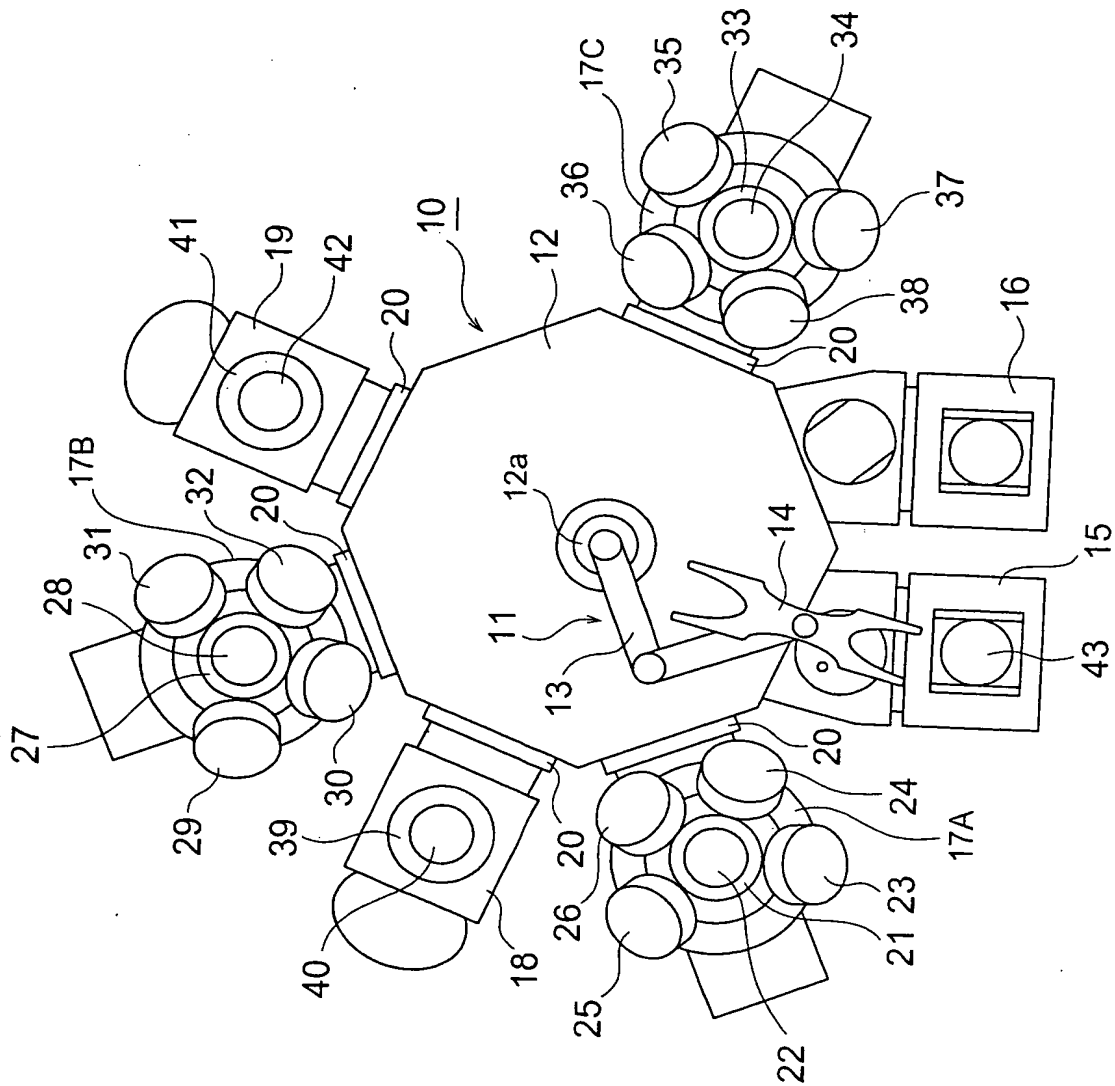


FIG. 2

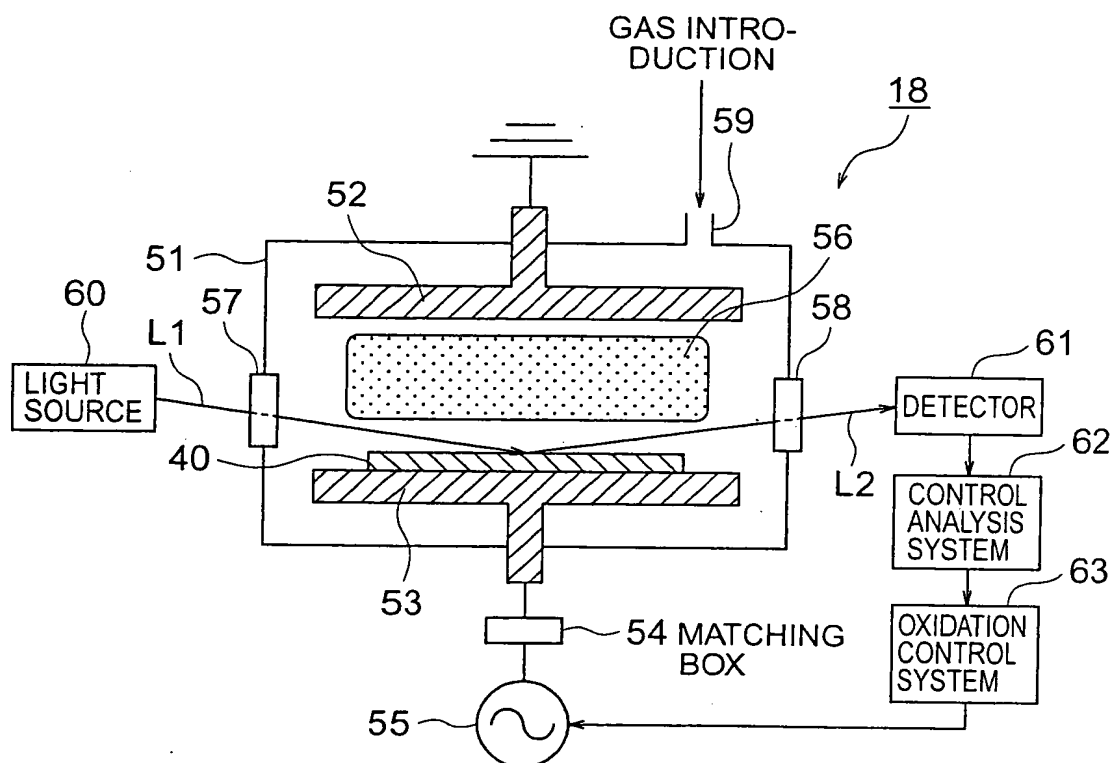
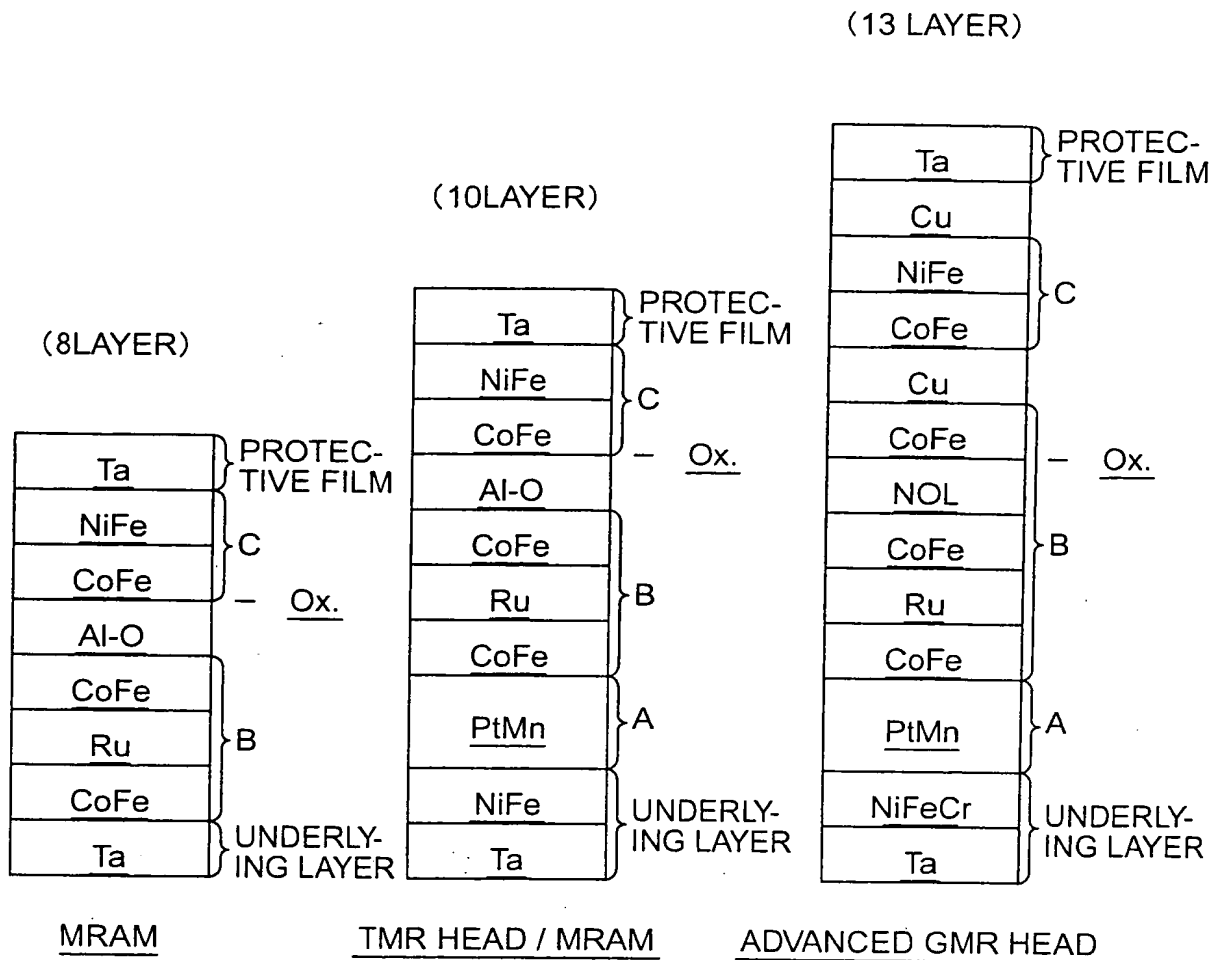


FIG. 3A

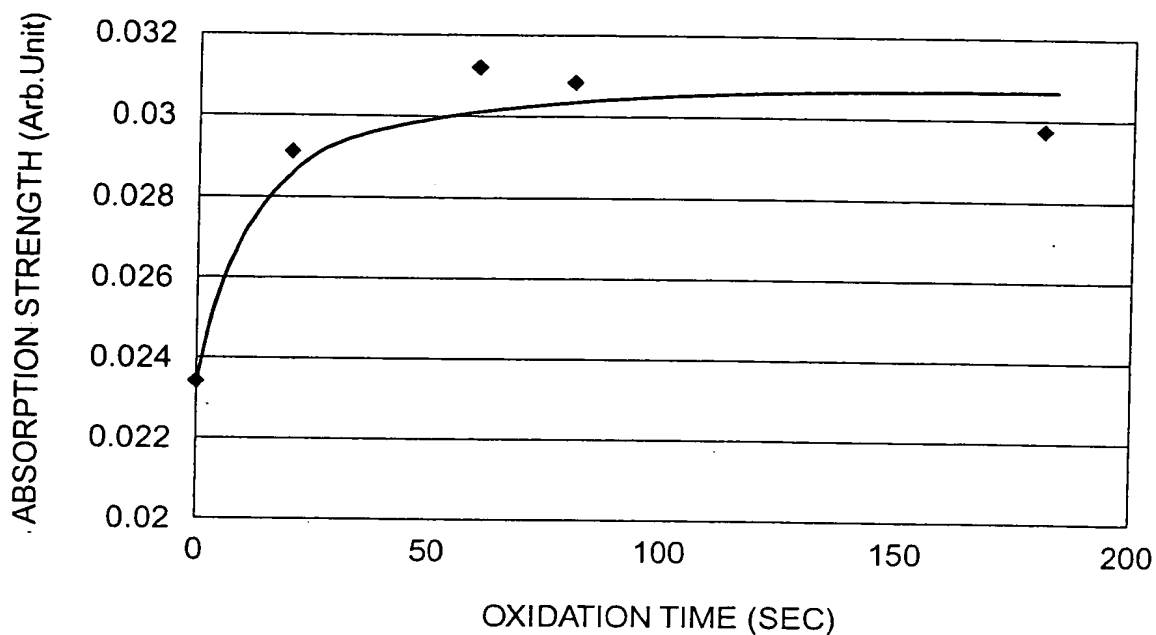
FIG. 3B

FIG. 3C



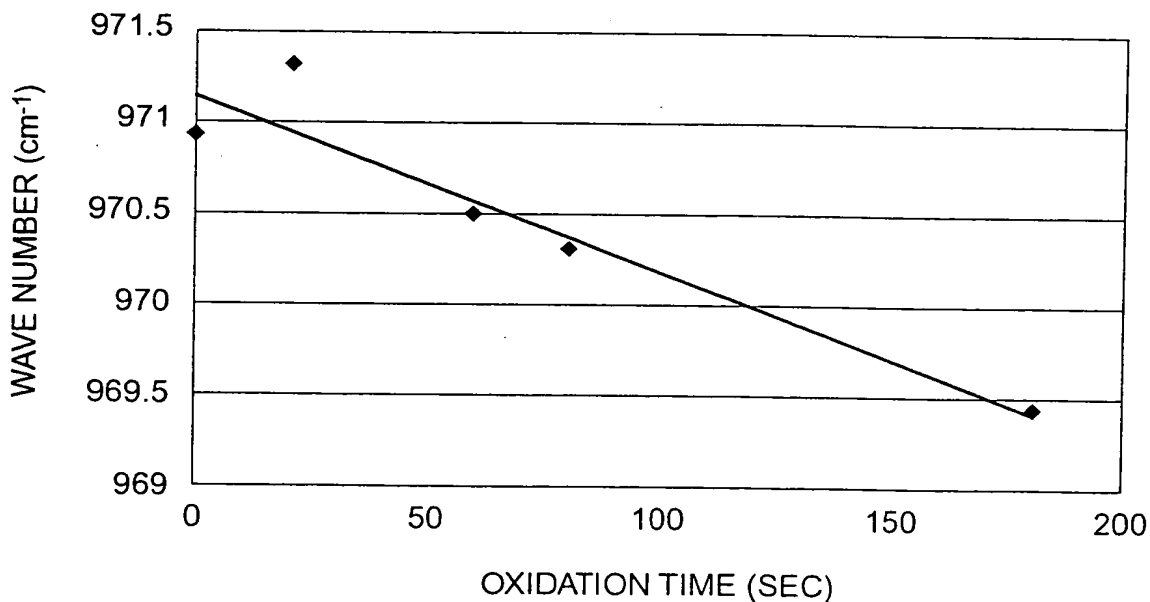
A : ANTIFERROMAGNETIC LAYER
 B : PIN LAYER
 C : FREE LAYER
 Al-O : Al OXIDE FILM(INSULATING FILM)
 Cu : NONMAGNETIC FILM
 Ox. : OXIDATION TREATMENT

FIG. 4



RELATIONSHIP BETWEEN ABSORPTION INTENSITY
NEAR 970cm^{-1} AND Al OXIDATION TIME

FIG. 5



RELATIONSHIP BETWEEN POSITION OF Al-O BAND
AND Al OXIDATION TIME